

# TCSS5AC COMPUTER SCIENCE 1

TCSS5AC Computer Science 1	6IC5S31	Duration : 30 hours	Credits : 3.5 ECTS	Half term: S5
<b>Person(s) in charge :</b>  Pierre-Etienne Moreau, professor, pierre-etienne.moreau@mines-nancy.univ-lorraine.fr				
<b>Keywords :</b> Data numerical encoding, databases, algorithmic, programming languages				
<b>Prerequisites :</b> The scientific undergraduate level is sufficient				
<b>Objective:</b>  The main goal for this course is to give the students the fundamentals as well as a general knowledge about computer sciences which are mandatory for any engineer to possess in order to understand the world in which he will hopefully work.  The three domains that will be approached( communication, memorization, calculus) will allow us to understand how data is represented, exchanged, and what methods are used to produce and transform data.				
<b>Program and Content :</b> <ul style="list-style-type: none"><li>• Communication : sending a message from A to B, computer history : data management, data representation, markup languages, data encoding: bits, data atoms, text encoding, data quantification, Kolmogorov complexity, Bennet proposition, Shannon's entropy</li><li>• Memorization: stocking data, and retrieving it. Databases. Relational Model. SQL</li><li>• Calculus: what can be calculated, calculus limits - Basics of algorithmic: instruction, variable, loops..</li></ul>				
<b>Abilities:</b>				
	Description and operational verbs			
Know				
Understand				
Apply				
Analyse				
Summarise				
Assess				
<b>Evaluations :</b>				
<input checked="" type="checkbox"/> Written Test	<input checked="" type="checkbox"/> Continuous Control	<input type="checkbox"/> Oral report	<input type="checkbox"/> Project	<input type="checkbox"/> Report